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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/842,440  | 04/26/2001  | Ulrich A. Muller     | 10366-012           | 7500             |
| 9629  | 7590        | 07/18/2006           | EXAMINER            |                  |
| MORGAN LEWIS & BOCKIUS LLP<br>1111 PENNSYLVANIA AVENUE NW<br>WASHINGTON, DC 20004 |             |                      | MILEF, ELDA G       |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 3628                |                  |

DATE MAILED: 07/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 09/842,440             | MULLER, ULRICH A.   |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Elda Milef             | 3628                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 4/20/2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4/20/06</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

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**DETAILED ACTION**

***Drawings***

The drawings were received on 4/20/2006. These drawings are acceptable.

***Claim Rejections - 35 USC § 112***

The rejection under 35 U.S.C. 112, first paragraph has been withdrawn.

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1. Claims 1-14 are rejected under 35 U.S.C. 101 because the steps of testing data do not provide a practical application of an idea resulting in a useful, concrete, and tangible result. Accordingly, a tangible and useful result is not realized and the claims are therefore rejected under 35 U.S.C. 101. See MPEP § 2106 II (A), and *State Street*, 149 F.3d at 1373, 47 USPQ2d at 1601-02.

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***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
4. Claims 1, 3-12, 14-19 are rejected under 35 U.S.C.

103(a) as being unpatentable over Rothman (Rothman, Philip.

*Nonlinear Time Series Analysis of Economic and Financial Data.*

Kluwer Academic Publishers, 1999. in view of Asherman (Asherman

et al., US Patent No. 6,384,748 in further view of Wood (Wood,

Robert A., Market Microstructure Research Databases: History

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and Projections. Journal of Business & Economic Statistics.

Alexandria: Apr 2000. Vol. 18, Iss. 2; pg. 140, 6 pgs.) .

2. **Re claim 1, 7, 9-12, 15:** It is well known in the art that time series data is filtered as stated in the applicant's own background of the invention.-see pgs. 1-2.

Rothman discloses testing for credibility of said data by comparing nearby data in the time series. See "Outliers" pp. 103-104.

Although Rothman does disclose the testing of data -see pp. 289-314, Rothman does not expressly disclose testing said data for decimal, scaling, and domain errors. Asherman, however discloses testing for decimal point errors and scaling errors in cols. 5-6, in particular, see col. 6, lines 10-25 ("First the decimal points are aligned by increasing exponent of the lesser number, in absolute value, and logically shifting its mantissa to the right by the corresponding number of digits. It is preferable to maintain a byte offset to avoid an actual shifting of the data. If the difference between the exponents is odd, an additional single-digit shift is performed..trailing zeros, if any, are removed and rounding performed if the scale of the result exceeds the scale of the number being operated upon").

It would have been obvious to one having ordinary skill in the

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art at the time of the invention to modify Rothman to include testing for decimal and scaling errors as was done by Asherman in order to minimize errors resulting from performing mathematical operations on variables having dissimilar data types.

Further, Wood teaches testing for domain error using error filters, ("Another important issue is the construction of the ISSM databases was the development of error filters. Relatively infrequent but huge errors exist in transactions data. A simple example is a series [time window] of prices at about \$40 per share, with a price of \$4 in the middle....After many hours of studying return patterns I have developed elaborate filters that examine both trades and quotes surrounding a suspicious price or quote change. ") -see p. 4 para. 5. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Rothman and Asherman to include testing for transactions data errors in a series of prices as taught by Wood in order to filter prices which are not consistent with surrounding prices in a series in an effort to correctly identify errors and save time and effort in resolving errors, reconciling the accounting systems, and minimize financial losses.

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**Re claims 3 & 14:** Rothman, Asherman, and Wood do not specifically teach detecting a long series of repeated quotes. Official notice is taken, that in the art of computer programming, identifying repetitive data is old and well known in order to detect errors and to save computer memory. For example, in C++ programming, a simple if/else statement or while loop can compare data fed into the program and detect a series of repeated data. Therefore, it would have been obvious to one having ordinary skill in the art of computer programming to modify Rothman, Asherman and Wood to use an if/else statement as is old and well known in the art of computer programming in order to compare the variables (data) in a time series to detect repetitive data and to alert the user of the repetitive data for use in further analysis.

**Re claims 4 & 16:** Rothman does not specifically disclose the step of testing said data for decimal error comprises the step of testing if an absolute value of a difference between a new quote and a previous quote is close to a power of ten. Asherman however, teaches comparing numeric data using the absolute values and shifting the mantissa of a number depending on the exponent (scaling). It is well known in mathematics that the manipulation of decimal numerals is based on power of ten.-

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see cols.5-6, Fig. 2. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Rothman to include testing and adjusting numerical data to reflect the correct decimal representation of a number as taught by Asherman in order to provide an accurate representation of the data being analyzed.

**Re claims 5,6,17:** Rothman and Asherman do not specifically disclose testing if a time interval between the new quote and previous quote is less than a predetermined time. Wood however, teaches detecting errors in a series of price transaction data using error filters. It is obvious that a time interval is present in a series and trade data relating to the securities is based on time intervals because of the very nature of exchanges. Therefore, it would have been obvious to one having ordinary skill at the time the invention was made to modify Rothman and Ahserman to include using error filters applied to series data as taught by Wood in order to compare the price of a security as often as necessary to detect errors.

**Re claims 7, 8, 18, 19:** Rothman and Asherman do not specifically disclose computing a corrected quote, and testing the corrected quote for validity. Wood however teaches ("ISSM databases was the development of error filters..A simple example is a series of prices at about \$40 per share, with a price of \$4



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in the middle... I have developed elaborate error filters that examine both trades and quotes surrounding a suspicious price or quote change.")-see p. 4 para. 5. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Rothman and Asherman to include testing for errors in quotes, and correcting the error as taught by Wood in order to accurately reflect trade data.

3. Claims 2 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rothman, Asherman, and Wood as applied to claims 1 and 11 above, and further in view of Parunak (Parunak et al. US. Patent No. 6,536,935).

**Re claims 2 & 13:** Rothman, Asherman, and Wood do not specifically show detecting a monotonic series of quotes. Parunak however teaches comparing buy and sell prices and the detection of a monotonic trend of price ranges in col. 17 lines 36-47. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Rothman, Asherman, and Wood to include identifying if data is monotonic as taught by Parunak in order to advise the user as to the best course of action to take to optimize return on investment.

### ***Response to Arguments***

4. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Powell, Mark. "Garbage In...Garbage Out". Petroleum Economist. London: Feb 2000. Vol. 67, Iss. 2; pg. 28, 2 pgs.- cited for its reference to decimal errors in data feed and that the errors can be easily detected by automated means by systems using range and variance checks.

US Patent No. 6,012,042 ( Black et al.)-cited for its reference to a securities analysis system using time series based technical data, as well as performing the time series analysis of securities data at varying time intervals specified by the user, hourly, daily, weekly, monthly....

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US Patent No. 5,109,475 (Kosaka et al.)- cited for its reference to a method and system for the selection of time series data.

US Patent No. 5,444,819 (Negishi)-cited for its reference to an economic time series data analyzing system, identifying variations of economic time series data.

US Patent No. 6,381,554 (Matsuo et al.)-cited for a method of prediction time-series continuous data and a control method using the prediction method.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elda Milef whose telephone number is (571)272-8124. The examiner can normally be reached on Monday -Thursday 8:30 am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hyung Sough can be reached on (571)272-6799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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HYUNG SOUGH  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3628